Spending effects of child-related fiscal transfers

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Fiscal transfers during a pandemic

• Fiscal stimulus is important when monetary policy is constrained

- Impact of stimulus measures can vary depending on the context
- Covid-19 recession very different from previous recessions
 - Supply side restrictions
 - Very high saving rates
 - Infection risk

How do these factors impact the spending effect of fiscal transfers?

 \Rightarrow We evaluate the German child bonus using daily scanner data

Related literature

• Fiscal policy responses to Covid-19 pandemic

- Unconditional transfers to households in US (Parker et al., 2022; Karger and Rajan, 2021; Baker et al., 2020; Chetty et al., 2020)
- Large variation in MPCs between 10% and 46%
- Typically find larger effects for liquidity-constrained HHs
- Interaction between pandemic and stabilization policies
 - Feedback between economic activity and infections in macro models with epidemiological dynamics (Kaplan et al., 2020; Eichenbaum et al., 2021)
 - Fiscal multiplier of military spending muted by stay-at-home orders (Auerbach et al., 2021)

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The German child bonus

• Direct transfer to families on top of regular child benefit

- ▶ 200€ per child in September 2020
- ▶ 100€ per child in October 2020
- ▶ 150€ per child in May 2021
- \Rightarrow Average total transfer of 675€
- Payment date within the month depends on child benefit number
- Automatic bank transfer to child benefit recipients
- Announcement in June 2020 received much media attention
- Tax treatment implies rich households do not benefit Tax treatment

Data

- Scanner spending data (Source: GfK)
 - Detailed information on household purchases at daily frequency
 - Covers non-durable and semi-durable goods
 - Sample period: July to December 2019, July 2020 to June 2021
 - ▶ In-person and online shopping (12% of spending online)
 - Over 8000 households included in the sample
 - Roughly 20% of households have eligible children
- 7-day case incidence at county-day level (Source: RKI)
- Dummies at county-day level for Covid restrictions (Source: BMWI)
 - Closure of elementary, high schools and child care facilities
 - Closure of retail shops and restaurants
 - Mask mandates, night time curfews and social distance requirements

Summary statistics: household level

Summary statistics: county level

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Identification using quasi-random payment dates

- **1** Date of receipt of *child benefit* from GfK survey in January '21
- 2 Use this information to infer date of receipt of child bonus
- Identify spending response in daily GfK spending data

(1)	(2)	(3)	(4)	(5)
last digit of child	child benefit in	child bonus in	child bonus in	child bonus in
benefit number	January 2021	September 2020	October 2020	May 2021
0	05.01.2021	04.09.2020	05.10.2020	05.05.2021
1	08.01.2021	07.09.2020	07.10.2020	06.05.2021
2	11.01.2021	08.09.2020	08.10.2020	07.05.2021
3	12.01.2021	09.09.2020	08.10.2020	10.05.2021
4	13.01.2021	10.09.2020	12.10.2020	11.05.2021
5	14.01.2021	11.09.2020	14.10.2020	12.05.2021
6	15.01.2021	14.09.2020	15.10.2020	17.05.2021
7	18.01.2021	16.09.2020	16.10.2020	18.05.2021
8	19.01.2021	18.09.2020	19.10.2020	19.05.2021
9	21.01.2021	21.09.2020	21.10.2020	21.05.2021

child benefit number uncorrelated with observables

Estimating the MPC: baseline specification

Difference-in-difference regression

$$y_{it} = \alpha_i + \gamma_{ct} + \beta \operatorname{Treat}_i \operatorname{Post}_{it} + \delta X_{ct} + \varepsilon_{it}$$

where

- *y_{it}*: spending by household *i* at date *t* normalized by average consumption of *i*
- α_i : household FE γ_{ct} : county x date FE
- Treat_i: dummy = 1 if household i eligible for child bonus
- $Post_{it}$: dummy = 1 if household *i* has received child bonus by day *t*
- X_{ct} : Covid case rate and dummies for restrictions at daily level
- ε_{it} error term clustered at the household level

Estimating daily spending effects

$$y_{it} = \alpha_i + \gamma_t + \sum_{k=-5, k \neq -1}^{13} \beta_k D_{it}^k + \varepsilon_{it}$$

where

- D_{it}^k : dummy indicating that payment of child bonus to household *i* on day *t* occurred *k* days ago
- Endpoints D_{it}^{13} and D_{it}^{-5} of effect window are binned to capture long-term effect before and after effect window
- Estimates to be interpreted relative to pre-treatment day k = -1
- Account for heterogeneous treatment effects due to differential treatment timing (Sun and Abraham, 2021)

MPC estimates: September 2020

	(1) total spending	(2) total spending	(3) total spending	(4) total spending
Treat × Post	0.104*** (0.028)	0.104*** (0.028)	0.108*** (0.029)	0.108*** (0.030)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls \times parent				yes
MPC	0.116***	0.116***	0.120***	0.121***
	(0.031)	(0.031)	(0.032)	(0.034)
Ν	271500	271500	271470	271470

• Convert β into marginal propensity to consume by

- Cumulating the percentage effect
- Multiply by mean spending to get € estimate
- Divide by average transfer received

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Daily spending effects: Sun and Abraham (2021)



similar results in standard event study

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Robustness checks

- Our results are robust to
 - including spending outliers
 - excluding households that likely do not benefit from child bonus
 - excluding households unsure about payment date
 - other transformations of outcome inverse hyperbolic sine log(x+1) levels
 - varying the sample end date
- The child bonus did increase the number of contacts
- We do not find any effect
 - of the two policy announcements
 - of the regular child benefit received in any month in 2019 •
 - of the child benefit on labor supply

Effect driven by non-durables and in-person spending

	(1) spending: semi-durables	(2) spending: non-durables	(3) spending: in-person	(4) spending: online
Treat × Post	0.010 (0.066)	0.106*** (0.027)	0.113*** (0.028)	0.212 (0.142)
HH FE	yes	yes	yes	yes
Date × county FE	yes	yes	yes	yes
MPC	0.004 (0.028)	0.081*** (0.021)	0.119*** (0.030)	0.028 (0.019)
N	195120	270270	271260	55560

Effect driven by low-income and constrained HHs

	(1)	(2)	(3)	(4)
	low wealth	high wealth	Iow income	high income
Treat × Post	0.103*	0.127***	0.128***	0.061
	(0.053)	(0.044)	(0.037)	(0.050)
HH FE	yes	yes	yes	yes
Date × county FE	yes	yes	yes	yes
MPC	0.110*	0.150***	0.132***	0.081
	(0.057)	(0.053)	(0.039)	(0.066)
N	93360	116040	125700	145230
	(5) HH constrained	(6) HH unconstrained	(7) checks account frequently	(8) checks account rarely
Treat × Post	0.271*	0.101***	0.126***	0.077
	(0.153)	(0.030)	(0.033)	(0.064)
HH FE	yes	yes	yes	yes
Date × county FE	yes	yes	yes	yes
MPC	0.251*	0.114***	0.141***	0.085
	(0.142)	(0.034)	(0.037)	(0.071)
N	14640	252360	192180	78240

Effect driven by areas with low case rates and savings

	(1)	(2)	(3)	(4)
	low case rates	high case rates	lax rules	strict rules
Treat × Post	0.166***	0.038	0.129***	0.094**
	(0.041)	(0.047)	(0.041)	(0.042)
HH FE	yes	yes	yes	yes
Date × county FE	yes	yes	yes	yes
MPC	0.190***	0.041	0.145***	0.104**
	(0.047)	(0.051)	(0.046)	(0.047)
N	135585	135372	144680	126790
	(1)	(2)	(3)	(4)
	low excess savings:	high excess	Iow excess savings:	high excess
	BOP HH	savings: BOP HH	GfK	savings: GfK
Treat × Post	0.173*** (0.050)	0.090** (0.042)	0.132*** (0.042)	0.096** (0.042)
HH FE	yes	yes	yes	yes
Date × county FE	yes	yes	yes	yes
MPC	0.195***	0.103**	0.153***	0.103**
	(0.057)	(0.048)	(0.048)	(0.045)
N	113820	110130	127770	128070

substitution to online shopping

by unemployment/short time work

by financial literacy/analytical skill

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Child-related transfers & spending

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No effect in October 2020 ...

	(1) total spending	(2) total spending	(3) total spending	(4) total spending					
Panel A: €100 per child payment in October 2020									
Treat × Post	0.000	-0.000	0.006	-0.020					
	(0.026)	(0.026)	(0.027)	(0.033)					
HH FE	yes	yes	yes	yes					
Date FE	yes	yes							
Covid controls		yes							
Date x county FE			yes	yes					
Covid controls x parent				yes					
MPC	0.001	-0.001	0.015	-0.050					
	(0.064)	(0.064)	(0.066)	(0.079)					
Ν	280612	280612	280581	280581					

... or in May 2021

	(5) total spending	(6) total spending	(7) total spending	(8) total spending
Panel B: €150 per child	payment in May 2021			
Treat × Post	0.006	0.005	0.000	-0.007
	(0.026)	(0.026)	(0.026)	(0.034)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls x parent				yes
MPC	0.010	0.008	0.001	-0.012
	(0.043)	(0.044)	(0.044)	(0.056)
Ν	261764	261764	261733	261733

- These null effects push the aggregate MPC estimate down to 5.4%
- Even assuming similar effects on durable goods and services, the resulting MPC would be only 14.2%
- What changed over time to push down the MPC?

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No heterogeneity by transfer size

	(1) small transfer (one child)	(2) large transfer (more than one child)
Treat × Post	0.087**	0.148***
HH FE Date × county FE	yes yes	yes yes
MPC	0.136** (0.058)	0.121*** (0.035)
Ν	253020	244320

- Similar MPC for HHs with one kid (200€) or more kids (450€)
- Variation in transfer size unlikely to explain null effects

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Covid case rate over time



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Savings rate before and during the pandemic



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Conclusions

• We estimate the spending effects of the German child bonus

- First transfer had a significant, but small spending effect
- MPC higher for
 - low-income, liquidity-constrained HHs with low savings
 - areas with lower Covid-19 case rates
- Second and third transfer had no discernible effect
 - Possibly related to higher infection numbers and high savings rates
- Overall MPC of the transfers quite low: bewtween 5% and 14%
 - Stimulus less effective when case rates are high
- Transfers compensate families for disproportional income losses

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Tax treatment of child bonus

Rich households ultimately do not benefit from child bonus

- For each child, tax authority compares:
 - Sum of child benefit and bonus
 - Tax deduction through child-related income tax allowance ('Kinderfreibetrag' = part of your income that is not taxed if you have children)
- If (2) exceeds (1), summed over all children, household does not benefit from child bonus
- Example: Household with 3 children
 - ▶ Income up to €67.816 benefits fully from child bonus
 - ▶ Income between €67.816 and €105.912 benefits partially
 - ▶ Income above €105.912: no benefit from child bonus
- \Rightarrow Roughly 80% of households benefit in full from child bonus

 $\tt https://www.bundesfinanzministerium.de/Content/DE/FAQ/2020-07-29-FAQ-Kinderbonus-Entlastungsbetrag.html the statement of the statement of$



Spending by households with and without children **Gark**



Notes: Figure plots average monthly expenditure for households with and without children. Dotted line indicates child bonus payments.

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Summary statistics: household level

	Households with children			F	louseholds	without	children			
	mean	sd	min	max	Ν	mean	sd	min	max	N
female	0.86	0.34	0	1	1846	0.67	0.47	0	1	7607
age	44.26	8.95	19	77	1846	61.00	12.05	19	77	7607
East Germany	0.26	0.44	0	1	1846	0.28	0.45	0	1	7607
household size	3.45	1.04	1	10	1846	1.62	0.62	1	6	7607
single	0.13	0.34	0	1	1846	0.44	0.50	0	1	7607
college or more	0.27	0.44	0	1	1846	0.27	0.45	0	1	7607
income per capita	1394.29	544.68	250	2500	1846	1688.50	565.64	250	2500	7607
net wealth (in €1000)	90.56	141.67	0	500	1476	79.43	133.78	0	500	5859
household constrained	0.07	0.26	0	1	1846	0.07	0.25	0	1	7593
checks account frequently	0.77	0.42	0	1	1844	0.70	0.46	0	1	7603
analytical skill	5.39	2.52	0	10	1845	5.30	2.63	0	10	7587
financial literacy	4.39	2.62	0	10	1845	4.35	2.71	0	10	7597
number of eligible children	1.50	0.70	1	6	1846					

back

Summary statistics: county level

	mean	sd	min	max	Ν
September 2020					
unemployment rate	5.71	2.27	2.10	16.00	401
share of labor force in short-time work	4.60	2.43	1.03	20.87	401
7-day case incidence	10.92	9.73	0.00	112.27	12030
stringency index	0.78	0.14	0.38	1.00	12030
October 2020					
unemployment rate	5.51	2.24	1.90	15.60	401
share of labor force in short-time work	4.13	2.26	0.95	20.13	401
7-day case incidence	48.04	46.13	0.00	322.34	12431
stringency index	0.80	0.14	0.38	1.00	12431
May 2021					
unemployment rate	5.37	2.25	1.90	14.80	401
share of labor force in short-time work	4.73	2.10	0.00	18.88	401
7-day case incidence	90.29	57.24	2.34	541.64	12431
stringency index	0.84	0.17	0.38	1.00	12431

back

	child benefit number	child benefit number
female	0.196	0.207
	(0.226)	(0.241)
age	0.000	0.003
	(0.009)	(0.010)
East Germany	-0.010	-0.036
	(0.167)	(0.186)
number of eligible kids	-0.047	0.023
	(0.176)	(0.194)
household size	0.019	-0.021
	(0.139)	(0.152)
single	-0.198	-0.216
	(0.287)	(0.315)
college or more	0.178	0.121
	(0.181)	(0.204)
total spending in August	0.000	0.000
	(0.000)	(0.000)
household constrained	-0.328	-0.376
	(0.278)	(0.304)
low income	-0.124	-0.145
	(0.173)	(0.196)
checks account weekly		0.023
		(0.198)
low wealth		-0.083
		(0.181)
high analytical skill		-0.121
		(0.177)
high financial literacy		0.192
		(0.174)
N	1846	1474

Correlation of child benefit number and observables **Gack**

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Daily spending effects: two-way fixed effect model **Daily**



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Including top and bottom 1% of spending distribution \blacksquare

	(1) total spending	(2) total spending	(3) total spending	(4) total spending
Treat × Post	0.108*** (0.029)	0.108*** (0.029)	0.111*** (0.029)	0.113*** (0.031)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls × parent				yes
MPC	0.120***	0.120***	0.124***	0.126***
	(0.032)	(0.032)	(0.033)	(0.034)
Ν	274620	274620	274590	274590

Excluding HHs that likely did not benefit from bonus (Deck)

	(1) total spending	(2) total spending	(3) total spending	(4) total spending
Treat × Post	0.098*** (0.030)	0.098*** (0.030)	0.100*** (0.031)	0.103*** (0.032)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls × parent				yes
MPC	0.109***	0.109***	0.111***	0.114***
	(0.033)	(0.033)	(0.034)	(0.036)
Ν	249300	249300	249270	249270

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Excluding households unsure about payment date

	(1) total spending	(2) total spending	(3) total spending	(4) total spending
Treat × Post	0.139*** (0.038)	0.138*** (0.038)	0.154*** (0.040)	0.158*** (0.042)
HH FE	yes	yes	yes	yes
Date FE	yes	yes	-	-
Covid controls		yes		
Date x county FE		-	yes	yes
Covid controls x parent				yes
MPC	0.153***	0.152***	0.170***	0.174***
	(0.042)	(0.042)	(0.044)	(0.047)
Ν	247230	247230	247200	247200

- This seems to slightly reduce measurement error
- \bullet MPC estimate rises to between 15% and 17%

Outcome variable: inverse hyperbolic sine Lack

	(1) IHS total spending	(2) IHS total spending	(3) IHS total spending	(4) IHS total spending
Treat × Post	0.078*** (0.021)	0.078*** (0.021)	0.091*** (0.021)	0.085*** (0.023)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls \times parent				yes
MPC	0.091***	0.091***	0.106***	0.099***
	(0.025)	(0.025)	(0.026)	(0.027)
Ν	269130	269130	269100	269100

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Outcome variable: ln(total spending + 1) (back)

	(1) $\log total spending + 1$	(2) log total spending $+ 1$	(3) log total spending $+ 1$	(4) $\log total spending + 1$
Treat × Post	0.066*** (0.018)	0.066*** (0.018)	0.077*** (0.018)	0.072*** (0.019)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date × county FE			yes	yes
Covid controls x parent				yes
MPC	0.076***	0.076***	0.089***	0.083***
	(0.021)	(0.021)	(0.022)	(0.023)
Ν	269130	269130	269100	269100

Outcome variable: spending in levels (back)

	(1) total spending in levels	(2) total spending in levels	(3) total spending in levels	(4) total spending in levels
Treat × Post	1.385*** (0.489)	1.384*** (0.490)	1.532*** (0.498)	1.534*** (0.526)
HH FE	yes	yes	yes	yes
Date FE	yes	yes	-	-
Covid controls		yes		
Date × county FE			yes	yes
Covid controls x parent				yes
MPC	0.103***	0.103***	0.114***	0.114***
	(0.036)	(0.036)	(0.037)	(0.039)
Ν	269130	269130	269100	269100

Varying sample end date **back**



- Baseline sample ends on 30th September 2020
- MPC estimate does not vary strongly by choice of end date

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Child-related transfers & spending

Regression analysis: Announcement effect

 $\ln c_{it} = \alpha_i + \gamma_{ct} + \beta \operatorname{Treat}_i \operatorname{Announcement}_t + \varepsilon_{it}$

where

- c_{it} total consumption spending by household i on day t
- α_i : household FE; γ_{ct} : county x date FE
- Treat_i: i eligible for child bonus
- Announcement_t: post policy announcement
- ε_{it} error term clustered at the household level

No effect of policy announcements (back)

	spending: semi-durables	spending: semi-durables	spending: semi-durables	spending: semi-durables
Panel A: Announcement of the	e September & Octo	ber 2020 payments		
Treatment × Announcement	-0.033	-0.034	0.023	0.029
	(0.097)	(0.097)	(0.102)	(0.103)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date × county FE			yes	yes
Covid controls x parent				yes
MPC	-0.006	-0.007	0.005	0.006
	(0.019)	(0.019)	(0.020)	(0.020)
Ν	112115	112115	112081	112081
	total spending	total spending	total spending	total spending
Panel B: Announcement of the	e May 2021 paymen	t		
Treatment × Announcement	0.061	0.060	0.062	0.039
	(0.039)	(0.039)	(0.040)	(0.045)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls x parent				yes
MPC	0.067	0.067	0.069	0.042
	(0.043)	(0.043)	(0.044)	(0.049)
N	151578	151578	< □ 151560 > < =	▶ ◀ = 151560= ∽ <
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No effect of regular child benefit Lack

Are our estimates picking up response to regular child benefit?



- Estimate same model for September 2019
- Parents received child benefit, but no child bonus

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Child-related transfers & spending

Was there substitution to online spending? **Gack**

	(1) in-person spending: low cases	(2) in-person spending: high cases	(3) online spending: low cases	(4) online spending: high cases
Treat × Post	0.175*** (0.040)	0.036 (0.046)	0.012 (0.218)	0.429** (0.214)
HH FE	yes	yes	yes	yes
$Date \times county FE$	yes	yes	yes	yes
MPC	0.176*** (0.040)	0.035 (0.045)	0.002 (0.031)	0.046** (0.023)
Ν	135497	135249	27220	28234

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No effect on labor supply back

$$h_{it} = \alpha_i + \gamma_t + \beta \operatorname{Treat}_i \operatorname{Childbonus}_t + \varepsilon_{it}$$

- *h_{it}*: weekly hours worked
- Treat_i: Dummy for eligible households
- Childbonust: Dummy for September & October 2020
- *α_i*: household FE
- γ_t : survey wave FE

	(1)	(2)	(3)
	hours worked: respondent	hours worked: partner	hours worked: total
Treat × Child Bonus	0.0685	0.5411	0.1592
	(0.3439)	(0.4479)	(0.5350)
N	7283	4612	7283

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More contacts due to increased economic activity **back**

	(1) number of shop visits	(2) number of shop visits	(3) number of shop visits	(4) number of shop visits
Treat × Post	0.030*** (0.009)	0.030*** (0.009)	0.031*** (0.009)	0.028*** (0.010)
HH FE	yes	yes	yes	yes
Date FE	yes	yes		
Covid controls		yes		
Date x county FE			yes	yes
Covid controls x parent				yes
Additional shop visits	0.665***	0.664***	0.706***	0.626***
	(0.202)	(0.202)	(0.208)	(0.218)
Ν	274620	274620	274590	274590

- The transfer increased number of shop visits
- Trade-off between stimulus and higher infection risk

A = A = A = A = A < A </p>

Heterogeneity by financial literacy and analytical skill was

	(1) high analytical	(2) Iow analytical	(3) high financial literacy	(4) Iow financial literacy
Treat × Post	0.095** (0.045)	0.115*** (0.039)	0.124*** (0.041)	0.113*** (0.042)
HH FE	yes	yes	yes	yes
Date × county FE	yes	yes	yes	yes
MPC	0.106** (0.050)	0.128*** (0.043)	0.144*** (0.048)	0.120*** (0.045)
N	118920	151440	136530	134040

Heterogeneity by unemployment rate & short-time work

back

	(5) low unemployment rate	(6) high unemployment rate	(7) low share of labor force either unemployed or in short-time work	(8) high share of labor force either unemployed or in short-time work
Treat × Post	0.088**	0.134*** (0.044)	0.098** (0.039)	0.121*** (0.043)
HH FE Date x county FE	yes ves	yes	yes ves	yes
MPC	0.099** (0.043)	0.147*** (0.049)	0.114** (0.045)	0.126*** (0.045)
N	135360	136110	135600	135870

Higher income losses for HHs with children **Deck**

	(1)	(2)	(3)
	income drop since	same income as in	income increase since
	February 2020	February 2020	February 2020
household with children	0.0358***	-0.0018	-0.0340***
	(0.0095)	(0.0043)	(0.0098)
Ν	10831	10831	10831

• About 29% of HHs report income loss overall

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